Remarks

Favorable reconsideration of this application in the light of the amendments and the following discussion is respectfully requested. The specification has been amended in order to incorporate an abstract. Claims 1-18 remain pending in this application.

Objections to the Abstract

The Examiner noted that the previous office action requested an abstract, in compliance with 37 CFR 1.72(b), and repeated this request for an abstract in this office action.

Response to Objections to the Abstract

As noted above, the specification has been amended to incorporate a new abstract on a separate sheet. It is therefore believed that the application complies with the requirements of 37 CFR 1.72(b). Additionally, applicants have amended page 11 of the specification for clarity purposes.

Specification Rejections – 35 USC 112, First Paragraph

The specification was rejected under 35 USC 112, first paragraph, based on the assertion that the specification failed to contain a written description of the invention, and of the manner and process of making and using it, in such clear concise and exact terms as to enable any person skilled in the art to make and use the invention. Specifically, the Examiner objected to the disclosure at page 11, lines 10-16, asserting that although polytetrafluoroethylene is not preferred in the present invention, a "modified polytetrafluoroethylene which is improved in the decaying property may be suitably used." The Examiner opined that this was so vague and indefinite as to constitute an invitation to experiment since no parameters were set forth for one of ordinary skill to know what might be the metes and bounds of the claimed invention.

Response to Specification Rejections – 35 USC 112, First Paragraph

With regard to the rejections under 35 USC 112, first paragraph, regarding the specification, applicants respectfully traverse the Examiner's rejections for the reasons following. First, an example of modified polytetrafluoroethylene is given on page 21, specifically a commercial material TFM-1700. Therefore, it is incorrect to indicate that the specification leads to limitless experimentation when a specific example of the material referred to is given.

Additionally, regarding materials that degrade with e-beam, tensile strength or elongation is often used to determine if e-beam has degraded the properties of the film. It is respectfully submitted that both US 5,288,400 and the Journal of Applied Polymer Sciences article cited in the present application discuss the elongation test and the fact that unmodified polytetrafluoroethylene fails this test.

Applicants theorize that polytetrafluoroethylene fails and other fluoropolymers are stable to e-beam because polytetrafluoroethylene has a very high melt viscosity and melt point allowing voids to form in the film which allow oxygen to get into the voids and cause degradation when the oxygen and e-beam radiation combine to degrade the polymer. Other fluoropolymers than polytetrafluoroethylene have a lower melt viscosity. Even a small amount of PPVE (perfluoropropyl vinyl ether) monomer added to polytetrafluoroethylene (on the order of 0.1%) lowers the melt viscosity and drastically improves the elongation stability towards e-beam.

The specification merely recites that polytetrafluoroethylene, in its unmodified state, is not a particularly suitable material for use in the present invention. The specification goes on to state that polytetrafluoroethylene, when modified (and giving at least one example of such a modified polytetrafluoroethylene) is a suitable material for use in the present invention. One skilled in the art (as evidenced by US 5,288,400 and the Journal of Applied Polymer Sciences article cited in the present application) would recognize what was meant by modified polytetrafluoroethylene as used in the present invention. Therefore, as the specification gives a specific example of a modified polytetrafluoroethylene, and references referred to in the specification disclose the elongation test, it is respectfully submitted that the specification is enabling.

Further, it is respectfully submitted that none of the claims on file specifically refer to modified polytetrafluoroethylene. In that regard, it is respectfully submitted that the Examiner has not, in any way, shown how the subject matter specifically claimed herein is not enabled. The specification is required to properly describe the claimed subject matter. It is submitted that the Examiner has not shown that the specification fails to provide an adequate written description to enable one skilled in the art to make the invention as claimed, as no claims specifically include the subject matter of modified polytetrafluoroethylene. The application (specifically pages 8-11 and the examples) contains an ample written description of non-decaying fluorine-containing materials.

For all of these reasons, it is submitted that the specification fully complies with 35 USC Section 112, first paragraph.

Claim Rejections – 35 USC 112, First Paragraph

Claims 1-18 have been rejected under 35 U.S.C. 112, first paragraph, as being based upon a non-enabling disclosure.

Response to Claim Rejections – 35 USC 112, First paragraph

As discussed above, it is respectfully submitted that the specification does contain a written description of the invention, and of the manner and process of making and using it, in such clear concise and exact terms as to enable any person skilled in the art to make and use the invention.

It is therefore submitted that the disclosure is enabling and that this rejection of the claims should be withdrawn.

Claim Rejections - 35 USC 103

Claims 1-18 have been rejected under 35 U.S.C. 103(a) as being unpatentable over JP - 613 taken in view of applicants' admissions set forth at page 11, lines 10-16, particularly lines 12-13 of the specification.

The Examiner states that:

> JP -613 clearly discloses the preparation of a pressure sensitive adhesive coated onto a suitable backing such as tetrafluoroethylene which is irradiated with a suitable ionization radiation beam, thereby improving the anchoring force of the adhesive agent relative to the substrate material. Although applicants argue that tetrafluoroethylene, is while a fluorine containing material, it decays when irradiated with an electron beam. However, the Examiner relies upon the aforementioned admission of applicant that a modified polytetrafluoroethylene which is "improved in the decaying property" may be suitably used, which is believed to be well within the ordinary skill of the art.
>
> To show the state of the art, the Examiner cites:
>
> Machi et al., U.S. 4,129,617, which discloses (note particularly the Abstract, column 1 line 65 column 2 line 17, column 3 lines 35-65, and column 5 lines 7-25) that polymers such as fluoropolymers which comprise a backbone chain of a fluoropolymer having side chains grafted thereon exhibit improved adhesion properties. Additionally, a wide variety of fluoropolymer are believed to be suitable (note, e.g. column 1 line 65 - column 2 line 17). Accordingly, one of ordinary skill, motivated by the desire to not have the fluorine containing sheet be decayed by exposure to radiation would modify the sheet in the manner suggested by Machi et al. and thereby either form, or clearly render obvious, the claimed genus of embodiments. What other parameters that are not either expressly or inherently disclosed are again each believed to be obvious modifications to one of ordinary skill, in the absence of unexpected results.

Response to Claim Rejections - 35 USC 103

Applicants respectfully traverse the rejections of the claims under 35 USC 103. The invention, as defined in claim 1, includes a pressure sensitive adhesive sheet comprising a substrate which is an electron-beam non-decaying fluorine-containing material sheet and a pressure sensitive adhesive layer provided on the outer surface of the substrate with or without an intermediate layer therebetween. The fluorine-containing material sheet has a chemical bond with the pressure sensitive adhesive layer or intermediate layer directly contacting with the fluorine-containing material sheet. The chemical bond is formed by the irradiation of an electron beam at least one said fluorine-containing material sheet.

Claims 17 and 18 describe methods for making a pressure sensitive adhesive sheet. Claim 17 describes a method for producing a pressure sensitive adhesive sheet comprising a

substrate which is an electron-beam non-decaying fluorine-containing material sheet and a pressure sensitive adhesive layer provided on the outer surface of the substrate with or without an intermediate layer thereon. The method comprises coating a pressure sensitive adhesive layer or an intermediate layer on the surface of an electron-beam non-decaying fluorine-containing material sheet and irradiating an electron beam on the coated fluorine-containing material sheet to form a chemical bond between the pressure sensitive adhesive layer or intermediate layer and the fluorine-containing material sheet. Claim 18 also describes a method for producing a pressure sensitive adhesive sheet comprising a substrate which is an electron-beam non-decaying fluorine-containing material sheet and a pressure sensitive adhesive layer provided on the outer surface of the substrate with or without an intermediate layer. The method comprises irradiating an electron beam on a electron-beam non-decaying fluorine-containing material sheet and then coating a pressure sensitive adhesive layer or an intermediate layer on the surface of the fluorine-containing material sheet to form a chemical bond between the fluorine-containing material sheet and the pressure sensitive adhesive layer or intermediate layer.

JP '613 discloses pressure sensitive adhesives with a substrate that can be polyethylene, polypropylene, PTFE, or the like. However, this reference merely shows examples of polyethylene. No examples are shown of polytetrafluoroethylene and there is no examples or discussion of other fluoropolymers. It is respectfully submitted that it is improper for the Examiner to site the present application as part of the 103 rejection when it is not known outside of this application. The Examiner specifically refers to applicants alleged "admissions" on page 11, lines 10-16, particularly lines 12-13 of the specification. This section of the specification states:

> For example, polytetrafluoroethylene is a polymer which decays under irradiation of an electron beam and is not preferred in the present invention. However, a modified polytetrafluoroethylene which is improved in the decaying property may be suitably used. Also, an electron-beam degradable material may be used in combination with a non electron-beam degradable or electron cross-linkable material if a film of the combination is not damaged by electron beam irradiation. (as amended)

It is respectfully submitted that this statement in the specification is not an "admission." This statement merely reflects the fact that polytetrafluoroethylene is not preferred in the present invention, but a modified polytetrafluoroethylene improved in the decaying property is suitable.

It is not understood how the Examiner uses this statement as an "admission" in conjunction with another reference. It is respectfully asserted that the Examiner's use of the applicants' disclosure is improper.

The Examiner uses Machi to indicate that the state of the art discloses grafted (modified) fluoropolymers to have better adhesion. From this follows the Examiner's argument that one skilled in the art would be motivated to modify as suggested by Machi to improve e-beam decay. It is respectfully submitted that, *contrary to the Examiner's assertion, Machi teaches modifying for adhesion **not** e-beam decay prevention.* It is respectfully submitted that it was not previously known that modifying polytetrafluoroethylene will reduce degradation. Polytetrafluoroethylene itself has good enough adhesion with e-beam, however it does not have e-beam resistance to degradation. Therefore, it is again asserted that outside of the present disclosure, this was unknown. Such hindsight analysis on the part of the Examiner is impermissible.

It is respectfully submitted that, without relying on the present disclosure, it would not be obvious to modify the JP -613 reference as suggested by the Examiner. Only in light of the present disclosure (page 11, lines 10-16 of which, as discussed above, was not an admission of state of the art, but instead was submitted as part of the description of the present invention) would one skilled in the art be motivated to modify JP -613 as suggested. It is well determined law that hindsight analysis based upon applicants invention is impermissible in a rejection under 35 USC 103. For example, in *in re Kotzab*, the CAFC found:

> A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of the invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. See *Dembiczak*, 175 F.3d at 999, 50 USPQ2d at 1617. Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against the teacher." *Id.* (quoting *W.L.Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983)).

The Examiner's rejection is based on a combination of the JP-613 reference and the teachings of the present invention. As shown above, it is improper to incorporate the teachings of the present invention in a rejection of the present application. This rejection is thus improper and should be withdrawn.

The Office Action fails to make a prima facie case of obviousness based on the references, taken alone or in combination. The claim rejections based on 35 USC 103 should thus be withdrawn.

Conclusion

For all of the reasons discussed above, favorable reconsideration of the application and the passing of the case to issue with all claims allowed is courteously solicited. Should the Examiner wish to discuss any aspect of this application, applicants' attorney suggests a telephone interview in order to expedite the prosecution of the application.

Respectfully submitted,

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Date

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